

IN THE CLAIMS

Please amend the claims as follows:

1. (Original) A method for determining the key of an audio signal, the method comprising the steps of:
 - for each of a plurality of signal portions, analysing the portion to identify [p v1]a musical note, and where at least one musical note is identified:
 - o determining a strength associated with the or each musical note; and
 - o generating a data record containing the identity of the or each musical note, the strength associated with the or each musical note and the identity of the portion;
 - for each of the data records, ignoring the strength associated with an identified musical note where said strength is less than a predetermined fraction of the maximum strength associated with any identified musical note contained within the data records;
 - determining a first note from the identified musical notes as a function of their respective strengths;
 - selecting at least a second and a third note from the identified musical notes as a function of the first note; and
 - determining the key based on a comparison of the respective strengths of the at least second and third notes.
2. (Original) A method as claimed in Claim 1, wherein each portion is the same size.
3. (Original) A method as claimed in Claim 1, wherein each portion encompasses the same length of time.

4. (Original) A method as claimed in Claim 1, wherein the size of the portion is a function of the tempo of the audio signal.

5. (Currently amended) A method as claimed in ~~any of Claims 1 to 5~~ claim 1, wherein the portions are contiguous.

6. (Currently amended) A method as claimed in ~~any of Claims 1 to 5~~ claim 1, wherein the predetermined fraction is determined in dependence on the content of the audio signal.

7. (Currently amended) A method as claimed in ~~any of Claims 1 to 6~~ claim 1, wherein the predetermined fraction lies in the range of one tenth to one half.

8. (Original) A method as claimed in Claim 7, wherein the predetermined fraction is one seventh.

9. (Currently amended) A method as claimed in ~~any of Claims 1 to 8~~ claim 1, wherein the step of analysing the portion to identify a musical note comprises the steps of:

- o converting the portion to a frequency domain representation;
- o subdividing the frequency domain representation into a plurality of octaves;
- o for each octave containing a maximum amplitude:
 - determining a frequency value at the maximum amplitude; and
 - selecting a note name of a musical scale in dependence on the frequency value;

and

- o identifying a musical note in dependence on the same note name being selected in more than one octave.

10. (Original) A method as claimed in Claim 9, wherein the conversion of the portion to a frequency domain representation is performed by means of a Fourier Transform.

11. (Currently amended) A method as claimed in Claim 9 ~~or 10~~, wherein the musical scale is the Equal Tempered Scale.

12. (Currently amended) A method as claimed in ~~any of Claims 1 to 11~~ claim 1, wherein the step of determining a strength associated with the or each musical note comprises the steps of:

- determining the amplitude of each frequency component of the musical note; and
- summing the amplitudes.

13. (Currently amended) A method as claimed in ~~any of Claims 1 to 12~~ claim 1, wherein the step of determining the first note comprises the steps of:

- for each identified musical note, summing the strengths associated with the musical note in the data records; and
- determining the first note to be the identified musical note with the maximum summed strength.

14. (Currently amended) A method as claimed in ~~any of Claims 1 to 13~~ claim 1, wherein the first note is the tonic of the key.

15. (Original) An apparatus for determining the key of an audio signal, the apparatus comprising:

- an input device operable to receive a signal;
- a data processing apparatus operable to :
 - for each of a plurality of signal portions, analyse the portion to identify [p v2]a musical note, and where at least one musical note is identified:
 - determine a strength associated with the or each musical note; and
 - generate a data record containing the identity of the or each musical note, the strength associated with the or each musical note and the identity of the portion;
 - for each of the data records, ignore the strength associated with an identified musical note where said strength is less than a predetermined fraction of the maximum strength associated with any identified musical note contained within the data records;
 - determine a first note from the identified musical notes as a function of their respective strengths;
 - select at least a second and a third note from the identified musical notes as a function of the first note; and
 - determine the key based on a comparison of the respective strengths of the at least second and third notes.

16. (Original) An apparatus as claimed in Claim 15, wherein the predetermined fraction is determined in dependence on the content of the audio signal.

17. (Original) An apparatus as claimed in Claim 16, wherein the predetermined fraction lies in the range of one tenth to one half.

18. (Original) An apparatus as claimed in Claim 17, wherein the predetermined fraction is one seventh.

19. (Currently amended) An apparatus as claimed in ~~any of Claims 15 to 18~~ claim 15, wherein for each of a plurality of signal portions, to analyse the portion to identify a musical note the data processing apparatus is operable to:

- convert the portion to a frequency domain representation;
- subdivide the frequency domain representation into a plurality of octaves;
- for each octave containing a maximum amplitude :
 - determine a frequency value at the maximum amplitude; and
 - select a note name of a musical scale in dependence on the frequency value;

and

- identify a musical note in dependence on the same note name being selected in more than one octave.

20. (Original) An apparatus as claimed in Claim 19, wherein the data processing apparatus is operable to convert the portion to a frequency domain representation by performing a Fourier Transform.

21. (Currently amended) An apparatus as claimed in Claim 19 ~~or 20~~, wherein the musical scale is the Equal Tempered Scale.

22. (Currently amended) An apparatus as claimed in ~~any of Claims 15 to 21~~ claim 15, wherein to determine a strength associated with the or each musical note the data processing apparatus is operable to:

- determine the amplitude of each frequency component of the musical note; and
- sum the amplitudes.

23. (Currently amended) An apparatus as claimed in ~~any of Claims 15 to 22~~ claim 15, wherein to determine the first note the data processing apparatus is operable to:

- for each identified musical note, sum the strengths associated with the musical note in the data records; and
- determine the first note to be the identified musical note with the maximum summed strength.

24. (Currently amended) An apparatus as claimed in ~~any of Claims 15 to 23~~ claim 15, further comprising an output device operable to send data corresponding to the key of the audio signal.

25. (Currently amended) A record carrier comprising software operable to carry out the method of ~~any of the Claims 1 to 14~~ claim 1.

26. (Currently amended) A software utility configured for carrying out the method steps as claimed in ~~any of the Claims 1 to 14~~ claim 1.

27. (Original) A jukebox including a data processor, said data processor being directed in its operations by a software utility as claimed in Claim 26.

28. (Original) A method for determining the key of an audio signal substantially as hereinbefore described and with reference to the accompanying drawings.

29. (Original) An apparatus for determining the key of an audio signal substantially as hereinbefore described and with reference to the accompanying drawings.